DOCUMENT RESUME

ED 121 254 IR 003 229

AUTHOR Cater, Douglass
TITLE Beyond ATS-6: Social Uses of Communications Satellites.
INSTITUTION Aspen Inst. for Humanistic Studies, Palo Alto, Calif. Program on Communications and Society.
PUB DATE Jun 74
NOTE 14p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage
DESCRIPTORS *Communication Satellites; Conferences; Delivery Systems; *Discussion Programs; Educational Technology; Experimental Programs; Government Role; Private Financial Support; *Telecommunication
IDENTIFIERS *Applications Technology Satellite; Aspen Institute

ABSTRACT

A panel discussion was held to examine the efficacy of the Applications Technology Satellites, powerful communication satellites designed to send quality signals to low-cost ground terminals. The satellites have been used on an experimental basis in rural America, Canada, and India. While the panel generally agreed on the great potential of the satellite, they also identified unresolved problems in developing the noncommercial applications of the technology. The discussion focused on three major topics: (1) the significance of the satellite experiment and its later cancellation; (2) the ability of the private sector to develop communication satellites for social uses; and (3) the future of the communication satellite. (EMH)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED121254

Aspen
Program on Communications and Society

Douglass Cater
Director

June 1974

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

BEYOND ATS-6: SOCIAL USES OF COMMUNICATIONS SATELLITES

PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY

Aspen Institute

TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER

Introduction

Douglass Cater

One hundred fifty years ago Henry David Thoreau, on hearing that a magnetic telegraph was being constructed between Maine and Texas, asked "But Maine and Texas, it may be, have nothing to communicate?" His is the skeptical view toward new technologies. Arthur Clarke, who first foresaw the synchronous satellite to be used for communication, counters with the story of a long ago committee set up to assess Gutenberg's invention which solemnly concluded that there was no need for the printing press since so very few people could read. Technology, according to this optimistic view, can be a beneficial force for social change. The Aspen Institute's Program on Communications and Society strives to strike a balance between the two perspectives as we contemplate our communications future.

On May 30, 1974, the ATS-6, the latest and most powerful of a series of "Applications Technology Satellites," was launched successfully from Cape Canaveral. Placed into stationary orbit 22,300 miles above the earth, ATS-6 will be used for elaborate experiments in the delivery of 2-way educational programs and health services in Appalachia, the Rocky Mountain states, and Alaska. After a year, the satellite will be shifted halfway round the world and will deliver television programs directly to several thousand remote villages in India.

A satellite that was ten years in preparation, ATS-6, because of its power and large (30 foot) antenna, makes possible greatly expanded access to space communications. Previous satellites have required earth receiving stations costing from several hundred thousand dollars to several million dollars; ATS-6 is capable of sending high quality color television and multiple radio channels to simple ground antennas costing approximately $3,000. For the first time, a satellite will be used to distribute "live" educational television courses to many remote schools in Appalachia and the Rocky Mountains, and to carry audio and video communications between doctors and native health aides in isolated areas of Alaska.

IR003229

With the cooperation of Al Horley, of the Department of Health, Education, and Welfare, the Aspen Program sponsored a seminar at Daytona Beach on the day prior to the launch. It was entitled "Beyond ATS-6" and raised fundamental questions about the next stages of satellite use for social purposes. This occasion appeared to be an opportunity for celebrating a great step forward. Yet during our seminar we began to realize how perplexing is our communications future.

A cynic might argue that despite all the time and planning, ATS-6 is already a failure. The experimental projects had to be assembled hastily; they have been chronically under-funded; the uses of the satellite do not always indicate a clear advantage over more conventional forms of communication. Perhaps most frustrating of all, these projects are scheduled for a nine-month test period before ATS-6 is moved to another part of the world. This is scandalously little time to demonstrate anything of enduring value.

One of the major questions to come before our seminar in Daytona: how could there be meaning in so brief a demonstration of uses as complex as education and health delivery? In exploring that question, we became aware that no one was in charge of the social dimensions of these new technological developments.

What are the pre-requisites for an effective test of satellite communication for social use? I would suggest, as a beginning observation, that they must parallel the technology of the satellite. It will take a blast-off capable of getting the project at least part way towards its orbit. It will require a continuing thrust in the software field even as with the hardware. We must be prepared to overcome inertial forces, for technology can be unsettling to existing institutions.

Perhaps the greatest good that will come from the communications satellite, as well as other new technologies in this coming age of communications, is to force us to examine what we communicate. Are we really serious about extending education, health and other social services for the benefit of mankind? Thoreau's question continues to be relevant.

EXCERPTS FROM THE DIALOGUE

While the panelists generally agreed on the great potential of satellites, they also identified a number of unresolved problems in developing the non-commercial applications of this new technology. The discussion focused on three major topics: 1) the significance of the ATS-6 experiments and the cancellation of subsequent ATS satellites; 2) the ability of the private sector to develop satellites suitable for social uses; and 3) the future of communications satellites. The following is a summary of this discussion.

I. The significance of the ATS-6 experiments and the cancellation of subsequent ATS satellites

ATS-6 will be available for experiments in the United States for approximately nine months before it is moved to India for a year. If, as expected, the satellite remains operational after completion of the Indian experiments in 1976, it may be returned for further experiments in the United States. However, no formal plans have been made for 1976 and beyond.

When the experimental projects were first planned, there was an expectation that ATS-6 would be followed by at least three additional ATS-series satellites. Plans for these satellites were subsequently scrapped for economy reasons. A joint U.S.-Canada satellite, called CTS, is to be launched in late 1975, but there are no current plans for further communications satellites wholly sponsored by the United States government.

The initial discussion concentrated on whether the current schedule offers sufficient time to establish clear results from the experiments and whether curtailment of the ATS program may retard development of social services delivered by satellite.

In a few hours ATS-F* is going to be launched. One year from that time, or perhaps a little less, it's going to be moved to India. This country has now made an investment of some $10-12 million, perhaps more, in research and development, in hardware, and in a substantial amount of software for the use of this satellite in the mountain west, in Appalachia, and in Alaska. When we came aboard this satellite, the ATS-G was planned and we assumed it would be launched. ATS-H and ATS-I were being addressed by NASA task forces. After a year into our project, NASA concluded they were going to withdraw from this kind of communications activity on the assumption that the private sector was prepared to move in.

I have no quarrel with that basic decision. I believe we should use commercial satellites when the private sector is prepared to assume the market risk that's essential in this kind of activity. But I think we are about to be left high and dry in a most embarrassing situation, embarrassing for a lot of people: For us because we may have to go out in pick-up trucks to Indian reservations and pick up this fancy equipment. To the Federal Government because they made a substantial public investment and essentially walked off and left it.

This is a problem which must be solved, and it's here now. The time frame is extremely short and some hard, tough decisions have to be made. And so the

*Before launch, NASA identifies satellites in the ATS series by letter; after a successful launch, they are designated by numbers. Thus, once in orbit, the "ATS-F" became "ATS-6."

future at this moment, beyond tomorrow morning, is not that glorious. We may have run out of time in which to come to the right public policy decisions on how to continue what I think is a very, very significant beginning in the delivery of public services through space technology.

- Jack Campbell
President, Federation of
Rocky Mountain States

It was NASA's announced policy to phase down our activities in research and development on communications satellites. We have not phased it out. A conscious decision was taken to complete the CTS program, in which we are jointly engaged with Canada. We have said that at the end of year two of ATS-6 life, we expect to bring the satellite back and park it where it will again be available for interested users in the U.S. to experiment with. During this year while it is over India, CTS will be available, and we're sharing the time 50-50 with Canada. Beyond those things, my agency has no current plans for the development of new experimental satellites. We have encouraged and continue to encourage the franchised industry to pick up our technology and turn it into tools for service.

- Richard Marsten
Director of Communications
Program, NASA

I think Governor Campbell has some difficult problems of experimental design, operation, and evaluation on his hands. I do know on the basis of a whole variety of evaluations that he can't do it in nine months. There is no way on earth he can demonstrate the operation of a program and evaluate whether or not it has been a success in nine months. The gestation period in this case is longer. Therefore, if any output is to be expected, the experiment has to be extended and with public funds. To speak of moving these services into the market place, in this context, simply has little meaning.

- Bowman Cutter
Director, Cable Television
Information Center

From the point of view of the social experimenters who didn't have much choice in the matter--and I speak here for the group I know best, in Alaska--it was clear from the beginning that a nine month experiment wasn't going to solve any of the real needs of the native Alaskans. I think the only reason the Alaskans are participating in this nine month experiment is that it will help publicize and dramatize that there is a real need there. In a sense it is an exercise to draw attention to a social problem in hope that as a result of drawing attention to it, maybe we can get on with finding solutions. This, then, isn't an answer; it's a way of drawing attention to the problem.

- Edwin Parker
Institute for Communications
Research, Stanford University

I have a feeling that with this satellite we are seeing a solution in search of a problem. Delivering health services to Alaska seems to me to use the inherent characteristics of the satellite marvelously well since you need instantanious transmission in order to deal with medical problems. In addition, satellite communications is distance insensitive and Alaska is huge. This kind of use seems to me to be very close-knit with the basic capabilities of the satellite. On the other hand, the other big use, of delivering instructional programming to schools, might well be better done some other way. Even the necessity for such programming is questionable. We really don't promote a software supplier's point of view.

- John Goberman
Director of Media Development,
Lincoln Center for the
Performing Arts

The decision to have social experiments using the 2.5 GHz (gigahertz) frequency was linked to an activity of a world-wide nature at the World Administrative Radio Conference. The United States wanted to secure this frequency allocation to protect future options.

ATS-6 was originally intended as an experimental project quite independent of these experiments in health and education. All we did was take an action to put a 2.5 GHz transmitter on that satellite, which was fairly inexpensive relative to the cost of the total technical experiment. If we hadn't done that, there would not have been this frequency allocation, and if there were not the frequency allocation, there would have been no possibility of any future use by any country.

Of course, there was anticipation in the beginning that there would be a follow-on of the kind Governor Campbell referred to. I would say we have a very large problem: We are trying to build a new nervous system, not only for our country, but for the rest of the world. And how does one experiment with one's own nervous system? If we don't build a new communications capability on a fairly full and large scale to begin with, how do we address the questions of what good it is and how do we put it together? I think this is a fundamental dilemma.

- Al Horley
Director, Office of Telecommunications, HEW

II. The ability of the private sector to develop satellites suitable for social services

Part of the government's rationale for curtailment of the ATS program is its belief that private enterprise should now begin to assume primary responsibility for developing domestic satellite communications. A domestic satellite system is in fact being created by private, profitmaking corporations. (The first of these, Westar I, owned and operated by Western Union, was put into orbit in April 1974.) However, these satellites are being designed primarily to serve commercial markets with such services as business data transmission, long distance telephone and network television transmission.

Several seminar members expressed skepticism about relying solely on the private sector to provide access for education and other social services. Others argued that such services were simply not yet well enough developed to survive in the marketplace and that subsidies for experimentation would continue to be necessary. A possible compromise position was offered by Dr. Horley of HEW, who suggested the government might underwrite some of the risk capital needed to encourage commercial interest in designing satellites for non-profit social services.

Experimentation is quite a bit different than operational use. We certainly applaud this effort as an experiment not only in technology, but in what use can be made of the technology. However, I think that when we talk in operational terms we do have to rely more on private industry to provide this capability rather than continually to depend upon large financing by the government.

The trade-offs are broader than just the trade-offs between dollars in space and dollars on the earth. The question is a trade-off between, say, new x-ray machines, more child care centers, old age medical help--and money in communications. I think we have to be convinced that the money in communications is well spent. And one way to do that is to let the private marketplace decide.

- Col. S.A. Lasher
Office of Telecommunications Policy

But at what point do we cease being experimental and become operational? We suddenly have become operational even before the experiments have started. That's what baffles me. It's the timing. I think in a two year period of time we could develop both a market and a constituency. Now, it's not likely we'll develop either in nine months. That's why it was such a tragedy to me to cancel the ATS-G.

- Jack Campbell

I want to say a few words under the heading of the moral dilemma of social experimentation, or what do we do if the experiment succeeds? If the experiment fails, it's just another experiment, and things can go back to normal. But I think the model that is operating here has a serious moral problem with it. I think the model (offered by Col. Lasher) is the technology transfer model: "Let's develop and demonstrate technology. Let's then transfer the technology to the private sector and let the marketplace determine its viability." When that model is applied to social services such as health, education and welfare, for which there is a public responsibility, then to do social experimentation--if it succeeds--makes a difference in the lives of people. Not having a social plan for implementing it on an operational basis is a morally difficult position to be in.

Let me give a particular example. Some of us have been working to help people in Aslaka with an ATS-1 satellite experiment. Using voice communication circuits on ATS-1, we connected communities where health care is provided by a native health aide with doctors in larger communities. These aides were previously on their own when the radio didn't work, which was most of the time. ATS-1 provided demonstrably better health care for the interior of Alaska. What happens next? Now that's the problem. We don't yet have an operational plan to follow on.

- Edwin Parker

I think that there is a consensus among us that there is a very important role for government--for NASA, for the Department of Health, Education and Welfare--in the original experimental stages, and there is an obvious role in our society for private enterprise to carry on the ultimate implementation. But when this is said, I don't think we have resolved the problem at all, because there is a hiatus between. By cutting off the experiment arbitrarily at an early stage, without worrying about the process by which the natural development can take place, we can thwart it. In the 19th century one could have run a railroad demonstration project by building just five miles of track and stopping there. It wouldn't have been very meaningful. What we really have to address ourselves to is how can a market be created by a process of early development which may take a very important governmental role, which is not cut off too soon.

- Ithiel de Sola Pool
Department of Political
Science, M.I.T.

In the United States, the primary and secondary school system, and to a degree higher education also, is simply not a marketplace in the usual definition. It is perhaps two percent so. It is basically a bureaucratic and political marketplace. It operates under somewhat different sets of rules.

The chances of resistance within education toward any proposals which sound as though they were going to replace the teaching force by anything, such as technology, are very great. And any effort in the next decade to demonstrate the efficiency of the distribution of what I'll call educational inputs is probably a waste of time. I suspect that the only effective argument in this bureaucratic and political marketplace is that the results of the use of technology in the primary and secondary schools will be higher quality of student learning. I see no other argument that is possibly effective against the realities of the next decade. There is, as far as I know, very little such evidence. Sorry, but there is very little evidence that technology improves any kind of measurement of what children learn.

- Francis Keppel
Aspen Institute;
Former U.S. Commissioner
of Education

One of the options which has had favorable consideration in the Department of Health, Education, and Welfare is a risk sharing arrangement between the government and private industry. The difficulty is in setting the ground rules for such negotiations, and being able to be fair to all parties that might want to participate. We also have a hard time, of course, in defining what the long-term public benefit might be. But it is quite clear that one of the government's roles is to underwrite this sort of research in service development, and to consider investing some of the risk capital in the technological system.

I would point out that for most of the services we've looked at, the communications or technological portion of them in dollar terms has never amounted to more than about ten percent of the total cost of the service delivery. So in any event, there would have to be substantial investment in non-technological components before one could really have a meaningful service experiment. I do think we could come up with the dollars to underwrite the technological end of the risk venture--if we can define adequately the services we want to experiment with.

- Al Horley

III. The future of communications satellites

Looking beyond the immediate fate of the ATS program, the seminar also considered the broader issues of potential uses of communications satellites. Here, the tone of the discussion became markedly more optimistic: Several panelists commented on the value of satellites as a stimulus to cooperation among institutions. Public television representatives explained that public broadcasting--both television and radio--has an active interest in using satellites to lower distribution costs and expand programming. The satellite was also seen as a major component, along with cable, the cassette, and the computer, in creating a new structure of communications for the United States --and the world.

Running throughout the discussion was the theme that identifying uses and designing the hardware are only the first steps. Of equal importance-- and almost certainly of greater difficulty--are the political battles necessary to gain support for the development of new services; the complex problems of implementation; and the need to change existing institutions, and create new ones, to realize fully the benefits of this new technology.

There are very fundamental considerations that affect delivery of health and education services lying behind the motivation to examine such an advanced technology as the satellite. One of them is that both health and education are labor intensive activities--they are high cost labor intensive. Secondly, there is a problem of distribution of the skilled personnel with whom we would like to interact personally. That is to say, having the services of the most capable physician, surgeon, or psychologist at our personal disposal is limited if we don't live where those people are available. The same is true of educational people. Compounded with that is the problem that the public dollar resources are not uniformly distributed throughout the country.

In addition, there is always the problem of absolute limitation, forcing decisions of allocation. There are never enough tax dollars to do all the things we would like in the public sector.

The answer is clearly <u>not</u> satellites as a panacea to all these problems. There may be a combination of technolgoies which could come to address these problems more effectively. I think we need to focus on service development: What are the service conceptualizations that make it possible to utilize technology to meet real needs in the area of health and education? Can we effectively combine the resources of skilled people who may live in different parts of the country--or perhaps even in different eras of time--through the combination of electronic storage and recording and distribution media, including the satellite? Can we aggregate users across very wide geographical areas and make them appear as a single source of revenue to the supplier of a service?

I think the satellite offers unique promises--but only if we can combine the resources of many different kinds of organizations and develop new consortium arrangements of users to capitalize not only the technology, but also the software.

- Al Horley

I would like to stress one point that has come up relatively seldom: While television and its role in education is extremely important, we ought to pay more attention to the plain, ordinary transmission of text--data communications--where all sorts of things are likely to become possible on a quite decentralized basis. Over the next couple of decades, the information that people are going to want in all sorts of professions and specializations is going to be increasingly computer-based. The technology now exists for remote access, but the question is one of cost. A hundred years ago, when the telephone came in one could have applied Thoreau's thesis: what good is it, we don't know what to put on it. But in fact, it did commit the mobilization of two hundred million people, each of them putting on their own notion of what they wanted to put on. In the same way, if computer facilities are made available not in a way that requires that the programming be pre-determined, but that makes them available for the mobilization of spontaneous creativity by large numbers of people, then the results could be very exciting.

There is every reason to expect that we will then see the same sort of thing as happened with the telephone, but now on a world-wide basis, not just a community basis. When the cost of world-wide exchange of information through text is similar to the cost of local telephone calls, then there is likely to be enormous growth of demand and social impacts that are not merely limited to our own country, but to the whole structure of world society.

- Ithiel de Sola Pool

Six years with CPB has taught me two things: The mandate given to the corporation was magnificent and idealistic, almost Utopian. The criticism most often leveled at us is that we don't offer enough programs that people want. There is no lack of desire for programming in public television; there is just the lack of funds to produce programs that will allow us to diversify according to our mandate. Our funds are currently limited by the substantial sums of money we must pay for interconnection of the system. One thing that the satellite can give us is flexibility. If the satellite can reduce the cost of distribution, the savings will permit us to improve and diversify our programming.

- Robert Benjamin
Board of Directors, Corporation
for Public Broadcasting

The present Public Broadcasting Service interconnects 247 television stations in three different time zones across the country. We do have some problems having to do with the technology of distribution. The quality we presently have leaves something to be desired. There is an objective in public broadcasting of decentralization and multiple point origination which is now costly to achieve, and we have looked to satellite technology as a possible means of improving the system. Satellite distribution, compared to terrestrial distribution, is much simpler, more comprehensive, and would also serve Alaska, Hawaii, the Virgin Islands, and Puerto Rico.

Terrestrial distribution is the most cost effective when you have a small number of points to interconnect, but the cost rapidly builds up if you have a large number of points. And 247 stations is a substantial number of points. We commissioned a study from the General Electric Company to see if satellite distribution could, in fact, be less costly. Oddly enough, the concept we came

up with was very similar to ATS-6: it employed direct broadcasting to ground stations by spot beams and a high-powered satellite.

To check this concept out, we leased from the TelePrompTer Corporation a mobile satellite receiving antenna and took it to 21 PBS stations around the country. We simply parked it alongside the studio building and cabled it into the station master control to see what kind of signal we could receive from the Canadian satellite, ANIK-1. In 17 of the 21 locations, which included some of our largest cities, it was interference free.

Once you have invested in a receiving terminal of the scope of this mobile receiving unit, which is on the order of about $100,000, for an additional $10,000 a piece, you can add the capability of receiving a second, a third, a fourth, or larger number of channels. If this does prove economically feasible, it would give public broadcasting an opportunity to be more than a single channel system. The public television stations now have one pipe coming to them, and they must accept whatever they get at the end of that pipe. In a satellite system it is quite feasible to receive more than one channel by aiming at a satellite and choosing among various transponders.

- Dan Wells
Director of Engineering,
Public Broadcasting Service

Public broadcasting is different from commercial broadcasting principally because it is aiming at distinct specialized audiences, most of which are relatively small in size compared to the large homogeneous audience that is sought by the commercial broadcasters. So the problem has always been how to get economy of scale by reaching a lot of the specialized audiences who may be geographically widespread.

The satellite can do two basic things for us that cost a great deal more by land lines. One is that we would no longer be terrestrially controlled in price. I think if you remove the terrestrial restraints, many other kinds of programs and consortiums could be put together by public television. Secondly, the one-time cost of putting together a special network is considerable. If you had satellites, you could put together transitory consortiums easily and quickly.

The satellite also provides reach to isolated areas--Alaska, the Rocky Mountains, Appalachia. Our law requires us to broadcast to all the American people. I presume nobody really took that seriously because it would be just about impossible. But clearly the directive was to get as many as possible. By our present terrestrial distribution, to get the last ten percent would cost about as much as getting the first ninety percent. The satellites would greatly change that.

I think that public television can use the satellites particularly if you think of it as a link with cable and cassette or disc, enabling us to provide true flexibility of individual programs at the viewer's choice in time and content. I think the satellite can and undoubtedly will play a significant part in that problem.

- Henry Loomis
President, Corporation for
Public Broadcasting

National Public Radio is not involved in the ATS-6 project precisely because it is an experimental program and our interest is in developing something that is operational. We cannot commit ourselves to something which is going to be cut off in nine months and leave us with expectations that cannot be realized.

We feel that the software already exists, at least for the service that NPR is providing. The people of this country are our software, and the satellite can help us to bring their interests into our service. We think Maine does have something to say to Texas and vice versa--and that people all over the country have something to say to each other about what's going on in our society, what their problems are, what their joys are, what the issues are. Satellite technology is going to permit National Public Radio to decentralize the content it provides in a way that is impossible now. We want a two-way system that really permits people to talk back and to participate fully, instead of having a one-way system that originates in Washington.

We are fundamentally interested in the bright prospects that have been discussed here. We can only hope that the experiments of ATS-6 will prove successful enough to induce the commercial operators to get into this business and provide us with the service for which we now have a very real need.

- Lee Frishknecht
President, National Public Radio

The satellite is going to be essential for the development of a mature cable television system in the United States. Only through the networking that satellites make possible will the immense capacity of the coaxial cable ever be used to meet special interests and to meet the myriad demands that many of us have foreseen. It is quite likely that the only way distinct special interests are going to be served is eventually through the creation, perhaps through the Public Broadcasting System or the Corporation for Public Broadcasting, of a public network via satellite and cable systems.

- Bowman Cutter

I would like to describe what Lincoln Center is doing as an example of other specialized software suppliers. Our pursuit is to develop a way of televising performances as they happen on stage and to get them to the small percentage of people who want to see them, and to find a way of charging the people for them. Practically the only way that specialized programs such as ours can use television is to find some way of avoiding the competition for scarce channel space. Naturally, we are looking to cable television as a solution. But I think there is a fallacy in the rationale for cable television at this point, and that is that it is not set up for specialized programming. Cable's abundance of air time reaches very few people--currently about twelve percent of all television households have cable. So if we could sign up five percent of the subscribers for our service, we are talking about only five percent of twelve percent of the television audience.

If we want to consider cable seriously, then we have to look very carefully at satellites and at their potential future benefits. A specialized programmer, such as we may be, depends on a critical mass of audience, and at this point cable systems can't offer us that in any practical sense. So the

satellite's ability to deliver a large programming base cheaply is terribly important. I see the ATS-6 as a step toward the kind of mechanism we will need. We and other specialized programmers are presenting a problem, and I think that the future satellites can become a solution to that problem.

- John Goberman

I want to stress something that seems of extraordinary significance. The justification for educational technology and technology for social uses has always seemed to me to be what it allows one to do that couldn't otherwise be accomplished. What is it that can occur through the use of a technology that would not otherwise happen, or at least would not happen as rapidly or as economically? All through the discussions (of the ATS-6 experiments) ran the theme of cooperation, of coordinated activity among educational institutions across state boundaries: Twenty-two colleges in Appalachia will be using programs produced by the University of Kentucky and offering credit for them--that's almost unprecedented.

I think this is an indication of the catalytic function that the satellite can bring about and I think that that's extraordinarily important. I think the satellite will help us accomplish the comprehensiveness we need in the application of all the different modes of technology that can be used for educational and social purposes. That, in turn, will help us acquire the kind of aggregate audience that Al Horley was talking about, which in turn would give us the economies of scale that will allow us to produce programs of real quality that will bring about a significant improvement in education.

- William Harley
President, National Association
of Educational Broadcasters

I think the ATS-6 satellite is a very worthwhile thing. It will be disappointing if we don't get a follow-through. I think the follow-through in terms of public and social services has to be fought for at a political level. You don't get it from the educational community. You've got to get it at the political level. These are services that are normally paid for with public monies, and to think that the private sector is going to step in at this point is unrealistic. So I think that those people who are interested in social services are going to have to look at what can be done politically to see that there is follow-through in terms of public support. The only way you're going to make it happen is to convince the political powers that there are economies of scale, that you can improve social and educational conditions with the right technology.

I'm still an optimist after having seen many, many failures. On the FCC, every time an educational proposal came up, there was always the question--but is the software going to be there? Are the communities going to use it? There was a lot of argument that it wasn't going to happen. Well, the interested people have got to make it happen.

- Rex Lee
Former FCC Commissioner

ASPEN INSTITUTE

PROGRAM ON COMMUNICATIONS AND SOCIETY

ATS-6
SATELLITE CONFERENCE

May 29, 1974 - Daytona Beach, Florida

RICHARD ADLER
Aspen Program

EDWARD BARRETT
Communications Institute,
Academy for Educational Development

ROBERT BENJAMIN
Board of Directors,
Corporation for Public Broadcasting

JACK CAMPBELL
President, Federa
Mountain States; Former Governor,
State of New Mexico

W. BOWMAN CUTTER
Director, Cable Television
Information Center

DAVID DAVIS
The Ford Foundation

LEE FRISHKNECHT
President, National
Public Radio

JOHN GOBERMAN
Director of Media Development,
Lincoln Center for the
Performing Arts

WILLIAM HARLEY
President, National Association of
Educational Broadcasters

ALBERT HORLEY
Director, Office of Telecommunications,
Dept. of Health, Education, and
Welfare

FRANCIS KEPPEL
Aspen Institute; Former
U.S. Commissioner of Education

LELAND JOHNSON
Communications Policy Program, RAND

COL. S. A. LASHER
Office of Telecommunications Policy

REX LEE
Former FCC Commissioner

HENRY LOOMIS
President, Corporation
for Public Broadcasting

RICHARD MARSTEN
Director of Communications
Program, NASA

SIDNEY METZGER
Asst. Vice President & Chief
Scientist, COMSAT

SHAFEEK NADER
Community College Association

FRANK NORWOOD
Executive Secretary, Joint Council
on Educational Telecommunications

MICHAEL NYHAN
Aspen Program

EDWIN PARKER
Institute for Communication
Research, Stanford University

ITHIEL DE SOLA POOL
Dept. of Political Science, M.I.T.

NORMAN WATSON
Chancellor, Coast Community Colleges

DAN WELLS
Director of Engineering & Technical
Operations, Public Broadcasting Service

WARD WHITE
Committee on Commerce, U.S. Senate

Moderator: DOUGLASS CATER
Director, Aspen Program